

Notice of Allowability	Application No.	Applicant(s)	
	10/821,791	KODEBOYINA, CHAITANYA	
	Examiner	Art Unit	
	MICHAEL C. LAI	2457	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to amendment filed on 6/4/2010.
2. ☒ The allowed claim(s) is/are 1-7, 10-18, 21-29, 32-38, 40, and 41.
3. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) ☐ All b) ☐ Some* c) ☐ None of the:
 1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).
 - * Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.
THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
 - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
 - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
 - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.

Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

- | | |
|---|--|
| <ol style="list-style-type: none"> 1. <input type="checkbox"/> Notice of References Cited (PTO-892) 2. <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) 3. <input type="checkbox"/> Information Disclosure Statements (PTO/SB/08),
Paper No./Mail Date _____ 4. <input type="checkbox"/> Examiner's Comment Regarding Requirement for Deposit
of Biological Material | <ol style="list-style-type: none"> 5. <input type="checkbox"/> Notice of Informal Patent Application 6. <input checked="" type="checkbox"/> Interview Summary (PTO-413),
Paper No./Mail Date <u>8/12/2010</u>. 7. <input checked="" type="checkbox"/> Examiner's Amendment/Comment 8. <input type="checkbox"/> Examiner's Statement of Reasons for Allowance 9. <input type="checkbox"/> Other _____. |
|---|--|

YVES DALENCOURT/
Primary Examiner, Art Unit 2457

DETAILED ACTION

This office action is responsive to amendment filed on 6/4/2010.

EXAMINER'S AMENDMENT

An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given in a telephone interview with Jennifer M.K. Rogers on 8/12/2010.

The application has been amended as follows:

- Claims 8-9, 19-20, and 31 have been cancelled.
- Claims 1, 12, 24, 34, 38, and 40 have been amended as follows:

Claim 1: A method comprising:

establishing a peering session between a first device associated with a first customer network and a second device associated with a second customer network using a first routing protocol, wherein the first routing protocol comprises an exterior routing protocol;

establishing a label switched path (LSP) through a plurality of intermediate networks communicatively coupled between the first customer network and the second customer network;

after establishing the peering session and the LSP, ~~outputting~~ transmitting by the first device routing communications over the peering session in accordance with the first routing protocol, the routing communications including layer two (L2) service information comprising Media Access Control (MAC) address state information for devices in the first customer network, as the MAC address state information is learned by the first device, wherein the L2

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service information includes information for L2 sites or end-points within the first customer network and next hop information used to reach the L2 sites or end-points;

communicating the L2 service information via the exterior routing protocol using an intermediate route relay device;

with the intermediate route relay device via the exterior routing protocol, maintaining and relaying the next hop information unchanged; and

providing an L2 service in accordance with the L2 service information to transport L2 communications between the first customer network and the second customer network through the plurality of intermediate networks using the LSP.

Claim 12: A device comprising:

one or more interface cards configured to communicate packets via input links and output links;

a routing process that receives, via packets received by the one or more interface cards, label information for a label switched path (LSP) through a plurality of intermediate networks communicatively coupled between a first customer network and a second customer network;

a first routing protocol that executes on a control unit of the device, establishes a peering session between the device and a second device associated with the second customer network, and receives a routing communication over the peering session that includes layer two (L2) service information associated with the second customer network, wherein the first routing protocol comprises an exterior routing protocol, wherein the L2 service information comprises Media Access Control (MAC) address state information for devices in the second customer network, wherein the L2 service information includes information for L2 sites or end-points in the second customer network and next hop information used by the device to reach the remote L2 sites or end-points, wherein the device is configured to relay the next hop information unchanged using the exterior routing protocol when the device receives the L2 service information and the next hop information via an intermediate route relay device, wherein the control unit processes the L2 service information in accordance with the first routing protocol by injecting the L2 service information into stored route information and resolving the route

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information to associate routes associated with the injected L2 service information with respective next-hops; and

an L2 service that operates in accordance with the L2 service information and transports L2 communications between the first customer network and the second customer network through the plurality of intermediate networks in accordance with the label information by outputting the L2 communications via the output links of the one or more interface cards.

Claim 24: A system comprising:

a border router that establishes a label switched path (LSP) through a plurality of intermediate networks, wherein the LSP communicatively couples a first customer network and a second customer network;

a first route reflector associated with the first customer network that establishes a peering session between the first route reflector and a second route reflector associated with the second customer network using an exterior routing protocol, and communicates with the second route reflector associated with the second customer network via routing communications that conform to the exterior routing protocol, wherein the routing communications include layer two (L2) service information that comprises Media Access Control (MAC) address state information for devices in the first customer network as the MAC address state information is learned by the first route reflector, wherein the L2 service information specifies one or more L2 sites or end-points in the first customer network and includes next hop information used to reach the L2 sites or end-points, and wherein the first and second route reflectors are configured to maintain and relay the next hop information unchanged upon receiving the next hop information via the exterior routing protocol; and

an edge router that provides an L2 service to the first customer network in accordance with the L2 service information to transport L2 communications between the first customer network and the second customer network through the plurality of intermediate networks using the LSP.

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Claim 34: A non-transitory computer-readable medium comprising instructions ~~that, when executed by a processor, to cause~~ [[a]] the processor to perform steps comprising:

execute a routing process that receives, via a routing communication that conforms to a first routing protocol, label information for a label switched path (LSP) through a plurality of intermediate networks communicatively coupled between a first customer network and a second customer network, wherein the first routing protocol comprises an exterior routing protocol;

receive, over a peering session established with the first routing protocol between the first customer network and the second customer network, layer two (L2) service information comprising Media Access Control (MAC) MAC address state information for devices in the second customer network, wherein the L2 service information includes information for L2 sites or end-points within the second customer network and next hop information used to reach the L2 sites or end-points;

relay the next hop information unchanged using the exterior routing protocol when the device receives the L2 service information and the next hop information via an intermediate route relay device;

process, in accordance with the first routing protocol, the L2 service information by injecting the L2 service information into stored route information and resolving the route information to associate routes associated with the injected L2 service information with respective next-hops;

execute a L2 service that processes the L2 service information associated with the second customer network to extract the ~~Media Access Control (MAC)~~ address state information; and

transport L2 communications between the first customer network and the second customer network through the plurality of intermediate networks in accordance with the MAC address state information using the LSP to emulate L2 connectivity across the intermediate networks.

Claim 38: A method comprising:

establishing a peering session between a first device associated with a first customer network and a second device associated with a second customer network using a first routing protocol, wherein the first routing protocol comprises an exterior routing protocol;

establishing a label switched path (LSP) through a plurality of intermediate networks communicatively coupled between the first customer network and the second customer network;

after establishing the peering session and the LSP, the first device ~~outputting~~ transmitting over the peering session a routing communication in accordance with the first routing protocol, wherein the routing communication including includes the layer two (L2) service information comprising Media Access Control (MAC) address state information for devices in the first customer network, wherein the L2 service information includes information for L2 sites or endpoints within the first customer network and next hop information used to reach the L2 sites or end-points;

processing the L2 service information with the second device using the first routing protocol by injecting the L2 service information into stored route information and resolving the route information to associate routes associated with the injected L2 service information with respective next-hops;

relaying the next hop information unchanged using the exterior routing protocol when the device receives the L2 service information and the next hop information via an intermediate route relay device; and

providing an L2 service in accordance with the L2 service information to transport L2 communications between the first customer network and the second customer network through the plurality of intermediate networks using the LSP.

Claim 40: A system comprising:

a border router that establishes a label switched path (LSP) through a plurality of intermediate networks, wherein the LSP communicatively couples a first customer network and a second customer network;

a first route reflector associated with the first customer network that establishes an Exterior Border Gateway Protocol (EBGP) peering session between the first route reflector and a second route reflector associated with the second customer network using the EBGP, and communicates layer two (L2) service information over the EBGP peering session with the second route reflector associated with the second customer network as the L2 service information is learned by ~~outputting~~ transmitting EBGP routing communications that include the L2 service information, and wherein the L2 service information comprises Media Access Control (MAC) address state information for devices in the first customer network, wherein the L2 service information includes information for L2 sites or endpoints within the first customer network and next hop information used to reach the L2 sites or end-points, and wherein the first and second route reflectors are configured to maintain and relay the next hop information unchanged upon receiving the next hop information via the exterior routing protocol; and

an edge router that provides a Virtual Private LAN Service to the first customer network in accordance with the L2 service information to emulate L2 connectivity by transporting Ethernet communications between the first customer network and the second customer network through the plurality of intermediate networks using the LSP.

Allowable Subject Matter

Claims 1-7, 10-18, 21-29, 32-38, 40, and 41 are allowed based on applicant's

Amendments/Remarks filed on 6/4/2010 and examiner's Amendment filed on 8/12/2010.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michael C. Lai whose telephone number is (571) 270-3236. The examiner can normally be reached on M-F 8:30 - 5:00 EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ario Etienne can be reached on (571) 272-4001. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Michael C. Lai
12AUG2010

/YVES DALENCOURT/

Primary Examiner, Art Unit 2457